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## THE DEVEREL BARROW, DORSETSHIRE.



URNS FOUND WITHIN THE BARROW.



Most persons, who inhabit a region abounding with open downs, must have frequently observed artificial hillocks, of a conical or pyramidal form, of various sizes, and often surrounded by a slight depression of the ground, which is the remnant of a ditch. They are called *barrows*, or *tumuli*, (which latter word is the Latin for *hillocks*) and they are the monuments of the formerly illustrious, but now unknown dead,—of ancient chiefs, princes, heroes, and other persons of distinction, whose names and exploits have long since been forgotten, and whose tombs are the only relics that still remain, attesting the insignificance rather than the greatness of human beings, whether civilized or rude.

The barrow is the most ancient, the most simple, and the most durable, kind of monument. It remains from age to age almost unchanged; while elegant and ingenious works of art, proud temples and lofty towers, splendid palaces, and vast cities, sink down and crumble into dust, and leave scarcely a landmark that may point out their site.

The barrow, as may be supposed, was the first kind of mausoleum ever adopted. It is simply an enlarged grave; and when a person's whole property, cattle, slaves, &c., were buried with him, the grave would

necessarily be enlarged, and become what is termed a *barrow*. Owing to its great simplicity, the barrow seems to have been adopted by almost every nation during its infancy; and hence barrows are found in almost every part of the habitable world. They are not confined to any country: there is perhaps not a region without them. The most civilized parts of Europe have barrows; and in the most lonely wilds of America barrows are found. The material of barrows is usually earth; but, where stone was abundant, it would very naturally be chosen, as being harder, and apparently more durable. The pyramids of Egypt, and other countries, are but immense stone barrows. The great antiquity of barrows has been inferred from their being mentioned by Homer. One of the most ancient known barrows is that of Halyattes, the father of Croesus, near Sardis, now called Sart, in Asia Minor. It is described by Herodotus, who says:—"The foundation, or bottom part, is of great stones, but the rest of the sepulchre is a tumulus of earth. Its circumference was more than three-quarters of a mile."

In England, *tumuli*, or barrows, are generally found on uncultivated downs and hills, and many of them are often arranged in a line, stretching over the hills,

sometimes for miles. Most of the barrows in this country must be ascribed to the aboriginal Britons, though some may mark the sites of battles fought in the Saxon times. After large battles, both sides often buried their dead in barrows; and thus, as the losing party gradually retired, it left behind a line of tumuli, marking its course. Most barrows, however, are the mausoleums of British chiefs or heroes, or the common burying-places of large and distinguished families. Great numbers of barrows are generally found in the neighbourhood of stone circles, cromlechs\*, rocking-stones†, and other druidical remains. Thus, they are very abundant near the temples of Stonehenge and Abury, on Salisbury Plain, and in other parts of Wilts and Dorset. There is an elevated ridge or chain of chalk hills, which commences at Bindon in Dorsetshire, and, running due east, quite through the isle of Purbeck, terminates abruptly in a bold promontory, between the bays of Swanage and Studland. This chain bears marks of having been formerly a populous region. Near its eastern extremity it is very elevated, and bears a cluster of barrows; and on its northern slope there stands, near Studland, an immense druidical altar, called the AGGLESTONE, consisting of a block of iron sandstone, computed to weigh four hundred tons, placed on a tumulus, and surrounded by an artificial morass. From this spot, throughout its whole length, which extends many miles, the ridge presents a succession of tumuli and other earth-works; and at its western extremity is a lofty insulated hill, crowned by the remains of a large city, of an oblong shape, formerly enclosed by a stone wall, whose foundations still remain, and are in some parts eighteen feet thick. The vicinity of Dorchester also appears to have been a region of importance. About eight miles east of Dorchester, near the great Western road, stands a remarkable barrow, which was opened in November, 1825, and was found to contain some curious relics, which were deposited in the museum of the Bristol Literary Institution.

It is situated on a small elevated piece of ground, called DEVEREL Down, from which five or six British and Roman encampments or stations are visible, in various directions: these are placed on insulated hills, and surrounded by circular or square earthworks. The Deverel barrow, as this tumulus is called, is about fifty-five feet in diameter at the bottom, and its height, before being opened, was twelve feet above the surrounding level. Its summit was not a flat surface, but very rough, and broken into hillocks, so that it had probably been frequently opened in search of treasure, and perhaps a portion of its contents had already been removed. The down, on which it stands, slopes considerably towards the south; but a level plateau had been formed, on which the barrow stands. This plateau is bounded on the south by a small bank or step about a foot high, which compensates for the slope of the down, and makes the spot on which the barrow stands quite level.

On beginning to open this barrow, it was found to consist entirely of a heterogeneous mass of flints, charcoal, and broken pottery, and it was probably reduced to this confused state by previous explorers, who removed all the ornaments, and other articles of value, and destroyed a portion of the rude clay urns, and such articles as were considered worthless. Thus it is probable that the rich store of ancient vases, which were found entire, was only a small part of the original number contained in this barrow; the larger part of whose contents had been reduced to a disorderly mass of shapeless fragments, by the rough usage

of those who only opened the tumulus in the hopes of finding treasure.

On examining more minutely, however, a compact bed or pavement of flints, firmly wedged together, was found, constituting, as it were, a floor to the barrow. The central part of the mound was therefore dug away, down to this floor, which was on the natural surface of the earth. When the central part had thus been removed, a singular spectacle appeared. On the level compact floor, just described, were arranged twenty large stones, of various irregular shapes and sizes. They were placed in a semicircular form, and the two extreme stones were much larger than the others. There were also three other smaller stones, not forming part of the general crescent, but placed by themselves. On removing some of the smaller stones, and on digging down to a lower level, it was found that immediately beneath each stone was a rude earthenware vase, placed in a *cist*, or case, cut in the solid chalk, and covered by the stone. In this manner each stone of the great crescent covered a vase, except the two large end stones, which are therefore concluded to be altars. They are each about four feet long, and of a conical shape; but one is placed upright, like a sugar-loaf, and the other is laid flat.

The vases, or urns, contained each the ashes of a human being, mixed with charcoal, which also constituted a great part of the substance of the barrow, and was probably the result of the funeral piles. The urns thus buried under the stones of the great crescent were not eighteen in number, but only sixteen; because at two different places it was found that two adjoining stones did not cover two urns, but that they concealed a third stone, beneath which was an urn. All the other stones, however, had each a separate vase. One of the three stones, separate from the crescent, as described above, also concealed an urn: the other two had none; but near one of them were found two rude cups; one containing a very rich earth, the other the bones of a bird.

There were also four urns found buried in the floor of flints, but not covered by stones. Three of them fell to pieces, but the remaining one was the largest of the whole assemblage, and differed from all the others in being placed with its mouth downwards. This made a total of twenty-one urns, of which seventeen have been preserved, principally entire, but a few in large fragments.

Besides these, there were found nine burnt skeletons, not in vases. Five were placed in graves, cut in the chalk, but not covered by stones; and four were simply collected in a heap on the floor of the tumulus, making in all thirty specimens of human remains. With the exception of the broken pottery, &c., distributed through the barrow, this constituted the whole of its contents. There were no weapons, nor costly ornaments, and not a single piece of any metal. This proves the great antiquity of the tumulus, which was probably made at that very remote period when our barbarous ancestors had not yet had intercourse with more civilized nations. The stones were apparently in the rude forms of their natural state, and bore no marks of any iron tool; and the urns were equally rude, some of the ornaments being evidently indentations formed by the human hand, nails, &c., in the soft clay. They were not made on a potter's wheel, or turned in a lathe, or they would have been more circular. The mouldings and zigzag ornaments were probably formed by the end of a pointed stick or bone. The various devices on the vases indicate a considerable time to have elapsed between the formation of the most rude and the most ornamented urn;

\* See *Saturday Magazine*, Vol. VI., p. 64.

† *Ibid.*, Vol. VI., p. 23.

thus allowing time for a considerable improvement in the manufacture. Hence the barrow has been inferred to be a family-vault, belonging to some British chief; so that the interments happened at very different periods.

The remains which are merely placed on the floor are probably the oldest; then those in cists or graves; then those placed in *rude* urns; and lastly those in more ornamented urns, and covered by stones. The pottery was black, friable, and rough, containing coarse white sand, and even small sea-shells. The makers of it were unacquainted with the art of augmenting its hardness and durability by the action of artificial heat; for it was only partially baked in some places by the fire of the funeral piles. Like all other unburnt, or simply sunburnt pottery, the damp had penetrated it, and rendered it so perishable as to fall to pieces on being touched; so that, to prevent its crumbling, it was necessary, before moving them, to dry or partially bake them, by keeping up a fire for a few hours, round the urn, in its original place in the cist. In the cut at the head of this article, which represents a few of these vases, two will be perceived cracked almost asunder, and having holes made in them on each side of the crack. This was the state in which they were found, and the holes were probably made to receive rivets or ligatures, (probably some animal sinews, which have long since perished) to bind the broken vase together. This proves the earthenware to have been, at the time of the burial, very costly; otherwise broken and mended vases would not have been employed.

It is to the zeal and industry of W. A. Miles, Esq. that we owe the exploration of the Deverel barrow: to this gentleman also are we indebted for our account of the Kimmeridge Coal Money, described in a former article.

#### UPON HEARING A LUTE FIRST TUNED, AND THEN EXCELLENTLY PLAYED ON.

THE jarring strings made so unpleasant a noise while the instrument was tuning, that I wonder not at the story that goes of a grand signior, who, being invited by a Christian ambassador to hear some of our music, commanded the fiddlers to be thrust out of his seraglio, upon a misapprehension that they were playing when they were but tuning. But this rare artist had no sooner put an end to the short exercise he gave our patience, than he put us to the exercise of another virtue; for his nimble and skilful fingers made one of the innocentest pleasures of the senses to be one of the greatest, and this charming melody does not so properly delight as ravish us, and renders it difficult to moderate the transports of our passions, and impossible to restrain the praises that express our satisfaction. So that if this musician had been discouraged by the unpleasant sounds that were not to be avoided, whilst he was putting his lute in tune, from proceeding to his work, he had been very much wanting to himself, and to save a little pains had lost a great deal of pleasure and applause.

Thus, when the faculties and passions of the mind, either through a native unruliness, or the remissness of reason and conscience, are discomposed, he that attempts to bring them into order, must expect to meet, at first, but an uneasy task, and to find the beginning of a reformation more troublesome for the time than the past disorders were. But he is very little his own friend if he suffers these short-lived difficulties to make him leave his endeavours unprosecuted; for when they have reduced the untuned faculties and affections of the soul to that pass which reason and religion would have brought them to, the tuned and composed mind affords a satisfaction, whose greatness does even at present abundantly recompense the trouble of procuring it, and which is yet but a prelude to that more ravishing melody, wherein the soul (already harmonious within itself) shall hereafter bear a part; where the harps of the saints accompany the glad voices that sing the song of the Lamb, and the hallelujahs of the rest of the celestial choir.—BOYLE.

THE women who are to be the regenerators of society must be Christian women,—Christian wives and Christian mothers, but enlightened Christians, deeply imbued with the spirit of Christ; not nominal Christians, making religion (though consoling to themselves) contemptible to those around them, by their narrow and limited acceptance of its truths. They must show forth that it is a grand comprehensive principle, which embraces all things from the greatest to the least, not only our safety, but our honour, our happiness, our ultimate glory. Let them deeply engraft these principles on the hearts of their children. It is true they cannot command results, but they will have done their duty.

Would they be restrained by a fear of injuring the worldly interests of their children, by the inculcation of these unworldly principles, so little needed for worldly advancement? Let them learn that godliness has the promise of this world as well as of that to come. If it be true (and the consent of ages proves it so) that happiness is not to be found in selfish gratification, it may be as well to seek it elsewhere. We may see how completely religion is adapted to the nature of man by observing that even the elements of enjoyment, (and they are many, though fleeting,) which this world contains, are never fully tasted but by religious persons. Those abundant sources of pure delight which are to be found in the heart, the intellect, and the imagination, are never received in their fulness but by them; and why? because they are the germs of their future and more glorious being, and can only flourish in a soil akin to that ultimately destined for them.

In a worldly mind, like plants removed from their original soil and climate, they exist indeed, but with a blighted existence, and produce, but how degenerate is their production! Everything that wants religion wants vitality. Philosophy without religion is crippled and impotent; poetry without religion has no heart-stirring powers; life without religion is a complex and unsatisfactory riddle; the very arts which address themselves to the senses, never proceed so far towards perfection as when employed on religious subjects. Religion, then, can be no obstacle to enjoyment, since the only sources of it which are confessedly pure, are all enhanced by its possession. Even in the ordinary commerce with the world, what a blessing awaits an exemption from the low and sordid spirit, the petty passions and paltry feelings which abound in it!

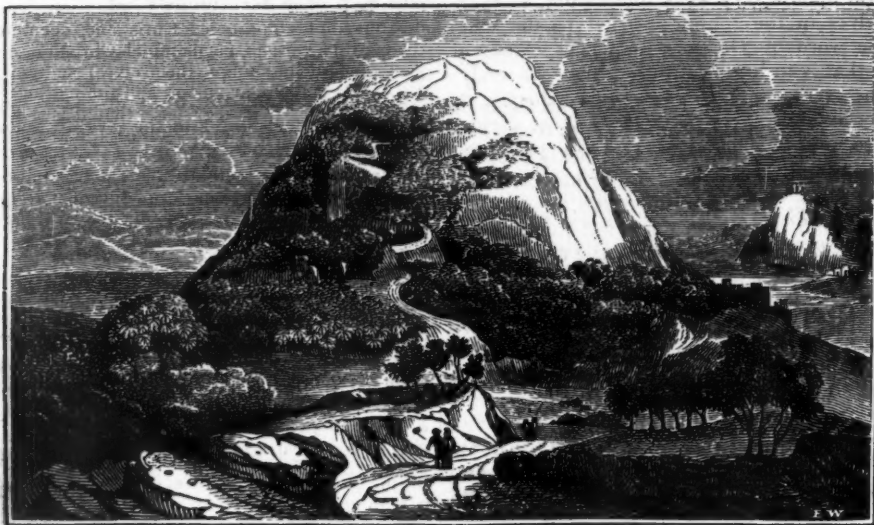
The truth is, that the religious heart enjoys more keenly all that others enjoy, and has, besides, an added and superior joy of its own:

He is the happy man, whose life e'en now  
Shows somewhat of that happier life to come.

And as to the effects of this unworldly spirit on worldly success, it is frequently not so adverse as may be thought: but, putting aside that view of the question, let us ask what a Christian mother can consider prosperity to be but the discipline which may fit her children for their true and final home, their ultimate and glorious destiny? No effort of hers can secure to her child the good things of this world, but she may put him in possession of a principle which will add double zest to them, if possessed, and supply their absence, if wanting. Is any other principle thus comprehensive, thus embracing every possible contingency of future life? How can we doubt, when we see a religion given to man, bearing so completely the stamp of all the operations of providence, "simplicity of principle, and universality of operation;" once thoroughly received into the soul, it is the *elixir vite* of it; securing to the possessor the certainty of peace, securing to others consistency of action, and exhibiting in all things that unity of design which is the stamp of all great works, divine as well as human.—*Woman's Mission*.

I CONFESS that the majesty of the Scriptures confounds me. The sanctity of the Gospel speaks powerfully to my heart. Examine the works of the philosophers, with all their pomp. How they sink into insignificance before it! Is it possible that a book, at once so sublime and so simple, can be the work of men? Moreover, to suppose a number of men to have combined in composing this book, rather than that one only should have supplied the subject of it, would be to strain, not to remove the difficulty: it would in fact be rendering it only the more incomprehensible. The Gospel indeed displays the character of truth, at once so grand, so luminous, so perfectly imitable, that the inventors of it would be yet more wonderful than the hero.—J. J. R.





## MOUNT TABOR.

MOUNT TABOR, or Itabyrius, is also called the mount of the Transfiguration, from the supposition that on this mountain our Saviour ascending with Peter, James, and John, was transfigured before them, in order that they might behold his glory, and receive, in the voice from heaven, the assurance of his Divine origin and commission,—“This is my beloved Son, in whom I am well pleased: hear ye him.”

Mount Tabor, or Thabor, is situated two leagues south-east of Nazareth, rising out of the great plain of Esdraelon at its eastern side. This mount has a singular character: it is almost entirely insulated, and its figure is that of a truncated cone. Pococke describes it “as one of the finest hills he ever beheld, being a rich soil that produces excellent herbage, and is most beautifully adorned with groves and clumps of trees.” The ascent is easily made by a winding road. Some authors say its height is four miles; others about two miles; but, when speaking of the height of the mount, the length of the winding ascent is frequently mistaken for it. Buckingham names one thousand feet as its elevation; but from the circumstance mentioned by Burckhardt of thick clouds resting on it in the morning in Summer, and his being an hour in ascending it, there is reason to think that Buckingham’s estimate is too low. The top of the mount, which is about half a mile long and nearly a quarter of a mile broad, is encompassed by a wall, which Josephus built in forty days; there was also a wall along the middle of it, which divided the south part, on which the city stood, from the north part, which is lower, and is called the *meidan*, or place, being probably used for exercises when there was a city here, mentioned by Josephus under the name of Ataburion. Within the outer wall, on the north side, are several deep fosses, out of which it is probable the stones were dug to build the walls; and these fosses seem to have answered the purposes of cisterns to preserve the rain-water, and were also some defence to the city. There are also a great number of cisterns under ground, for a similar purpose. To the south, where the ascent was easiest, there are fosses cut on the outside to render the access to the walls more difficult. Some of the city gates remain: to the west is *Bab-el-houah*, the gate of the winds; and a small one to the south is called *Bab-el-kubbe*,

or the arched gate. Burckhardt traced a thick wall, constructed of thick stones, quite round the summit of the mount and close to the edge of the precipice: on several parts of it he found the remains of bastions. The area is overspread with the ruins of private dwellings, built of stone with great solidity. The strong walls erected by Josephus seemed necessary to the security of the fortress on the top of the hill, which had been taken by Antiochus, king of Syria, as also afterwards by Vespasian.

Saint Jerome is the authority which fixes the scene of our Saviour’s transfiguration on this mountain. It is remarkable that so many of the principal events of Scripture are represented by those who undertake to show where everything was done, as having taken place in grottoes; even in such cases where the condition and the circumstances of the actions themselves seem to require places of another nature. We have already had occasion, in our article on Bethlehem, to refer to this subject. “Certainly,” says Pococke, “grottoes were anciently held in great esteem, or else they could never have been assigned, in spite of all probability, for the places in which were done so many various actions. Perhaps it was the hermit’s way of living in grottoes, from the fifth or sixth century downwards, that has brought them ever since to be in so great reputation.” Thus, on the east part of Mount Tabor are the remains of a strong castle; and within the precinct thereof is the *grotto*, in which are three altars in commemoration of the three tabernacles which Peter proposed to build, and where the Latin fathers always celebrated their holy rites on the day of the transfiguration. A magnificent church is said to have been built here by the royal Saint Helena, which served as the cathedral when this town was made a bishop’s see. There was formerly a convent of Benedictine monks here; and, on another part of the hill is a monastery of Basilians, where the Greeks have an altar, and perform their service on the festival of the transfiguration. On the side of the hill is shown a church in a *grotto*, where it is said Christ charged his disciples not to tell what things they had seen, until after he was glorified.

That Mount Tabor is indeed the scene of the transfiguration admits of considerable doubt. Setting

aside the positive fact that Roman Catholic legends rest in general upon a very weak foundation, we may repose ourselves in the confidence that to the true Christian the word of God is a sufficient "reason for the hope that is in him;" and that, if he sincerely believe in the events and promises of the Gospel, it really matters but little as to the scene of those events or the precise spot of ground where those promises were made. Doubtless it is interesting, eminently so, to be informed of the present condition of the land wherein the Gospel for all nations was first promulgated: but we must distinguish carefully between Divine and human authority: the events and promises of the Gospel rest on the former: the knowledge of the localities of those events rest on the latter; and, in the case before us, the authority is very suspicious, namely, St. Jerome. Indeed, we have no scriptural authority for assigning Mount Tabor as the scene of the transfiguration, but on the contrary. We read that our Saviour took with him Peter, and James, and John, and brought them up "into a high mountain apart," whence it seems to have been erroneously implied that the mountain must be Tabor, the word *apart* being applied to the isolated position of the mountain. Now it appears from the original Greek (*kat' idian*) that the word *apart* applies to the *persons*, and not to the mountain. The same term frequently occurs in the Gospel narrative, and is always understood in the sense of *privately*, or *by themselves*. Besides, in the time of our Saviour, Mount Tabor was the scene of a busy population, its fortress was considerable, and could not have been selected on account of its privacy. The reader may therefore fairly doubt the authority which assigns Mount Tabor as the scene of the transfiguration.

Hasselquist says,—

After travelling two hours from Nazareth, we began to ascend Tabor, cooled by its agreeable dew and refreshed by the milk of its fine herds of goats. It was a league up to the top, stony and difficult; but we did not, however, dismount. On the top of it is a fine plain, the sides of it rocky. The hill is round, hath no precipices, is about four leagues in circumference, beautiful and fruitful.

Among the productions of Mount Tabor we may enumerate the oak, the carob-tree, the turpentine-tree, the holly, the myrtle, the ivy, oats, onion, artichoke, sage, rue, wormwood, saxifrage, poppy, &c. Here also exist red-partridges, the rock-goat and the fallow-deer. Burckhardt speaks of ounces and wild boars. Van Egmont describes a tree whose blossom resembled that of the orange-tree, and had the same fragrant smell; but the leaves were something like those of the linden-tree, and the fruit is gathered to make rosaries.

From the top of Tabor, (says Maundrell,) you have a prospect, which, if nothing else, will reward the labour of ascending it. It is impossible for man's eyes to behold a higher gratification of this nature. On the N.W. you discern at a distance the Mediterranean, and all round you have the spacious and beautiful plains of Esdraelon and Galilee. Turning a little southward, you have in view the high mountains of Gilboa, fatal to Saul and his sons. Due east you discover the sea of Tiberias, distant about one day's journey. A few points to the N. appears that which they call the Mount of the Beatitudes. Not far from this little hill is the city Saphet; it stands upon a very eminent and conspicuous mountain, and is seen far and near.

Beyond this, part of the snow-capped Anti-libanus chain is seen: to the south-west is Carmel, and the hills of Samaria to the south.

The hill of the Beatitudes is said to be the place where Christ delivered his "Sermon on the Mount," which begins with the peculiar *blessings* awarded to those who are favoured of heaven. It is contained in the fifth, sixth, and seventh chapters of Saint

Matthew. Near this hill the multitude is said to have been once miraculously fed.

Mount Tabor is calcareous. In the mornings of summer it is covered with thick clouds which disperse towards mid-day. A strong wind blows during the day, and at night the dews are very copious. In 1810 Burckhardt found on the summit a single family of Greek Christians, refugees from Ezra in the Haouran, who had sought this retired spot to avoid taxes. They rented the upper plain at the annual rent of fifty piastres from the Sheikh of Daboury, to which village the mountain belongs.

The harvest which they were now gathering in was worth about twelve hundred piastres, and they had had the good fortune not to be disturbed by any tax-gatherers, which would certainly not be the case next year, should they remain here.

On a rising ground at the foot of Mount Tabor westward, is situated a mean village called Deboura, or Tabour, a name said to be derived from the celebrated Deborah mentioned in the book of Judges, the prophetess having directed Barak to encamp here with his host.

Proceeding from the foot of Tabor in a north-west direction, the traveller arrives at the village of Eksall, or Zal, supposed to be the Xaloth mentioned by Josephus as one of the boundaries of Lower Galilee. It stands on a low ridge of rock, and near it are many sepulchres, some like stone coffins above ground, others are cut into the rock like graves, some having stone covers over them. Buckingham found about twenty of these covered sepulchres still perfect; and in one, whose closing block had been so moved aside as to leave an opening through which the interior of the grave could be seen, a human skull remained perfect.

Mount Tabor is now called by the Arabs *Djebel Tour*.

#### LEAF OF A TREE AT COPANG, IN TIMOR ISLAND.

SOME of the sailors had procured a rude but sweet native instrument on shore, and the governor's nephew showed us the way in which it was played. It was merely the leaf of a tree, of sufficient firmness to retain the form into which it was bent, and three strings were passed through the two ends; the tone being produced in the same manner as on a guitar. A musical person on board afterwards accomplished several airs by ear, which he played with the bow of a violin.

The leaf of this tree is very useful to the inhabitants of Copang; they make their drinking cups out of it, and their pails for carrying water. The ends of the leaf are drawn partially together, and fastened and made firm by a stick, whilst the edges are nicely stiffened by a broad hem of its own. A string is fastened to the centre of the stick, which is hung on a pole and carried across the shoulder, one before and one behind the bearer. These leafy pails are of a beautiful colour, more yellow than green, and when filled with water look cool and refreshing, and from their mode of carrying them have a most graceful appearance.—*Two Years at Sea*, by JANE ROBERTS.

**A GOOD RULE.**—When Sir Christopher Wren was building St. Paul's Cathedral he caused the following notice to be affixed to several parts of the structure:—"Whereas, among labourers and others, that ungodly custom of swearing is too frequently found, to the dishonour of God, and contempt of authority; and to the end that such impiety may be utterly banished from these works, which are intended for the service of God and the honour of religion, it is ordered that profane swearing shall be a sufficient crime to dismiss any labourer that comes to the call; and the clerk of the works, upon sufficient proof, shall dismiss them accordingly; and that if any master, working by task, shall not, upon admonition, reform the profanation among his apprentices, servants, and labourers, it shall be construed his fault, and he shall be liable to be censured by the commissioners."



## THE FIRE-FLY IN AMERICA.

## IGNORANCE AND SUPERSTITION OF AN IRISH FAMILY.

THE diminutive insect, the fire-fly, is found, I believe, in all parts of the torrid, as well as in the countries situated in the warmer regions of the temperate, zones; and, in most instances, where they are known at all, during the summer months, when the nights are dark and damp, these tiny intermittent specks of sparkling light may be seen in vast numbers, flitting about in every direction. They are common in all the inhabited parts of North America, which it has been my lot to visit during the summer season; and this I mention because the anecdote I am about to relate occurred in that country. The Americans, in common parlance, call the fire-fly "lightning bugs," *bug* being a general term with them for almost every species of winged insect, except in some of the larger sorts, as, for instance, butterflies, *mammoth* moths, and devils' needles.

An Irish family, from the county of Clare, arrived in our neighbourhood about the middle of June, in order to take possession of a lonely little farm, which a short time before had been occupied by the brother of Dennis, (the name of the new comer,) who had caught a fever, which terminated fatally. Having had no family of his own, Dennis, as next of kin, became heir to "a landed estate." The tidings of the brother's death no sooner reached Dennis, than he sold his "cow and his pig," bade adieu to his dear "county Clare," crossed the "broad Atlantic," and with his wife and family, after encountering perils on sea and land, arrived at last in the secluded valley of the Choconut. Dennis's new residence was situated in a very lonely place, near the spot where two mountain-creeks united, and surrounded on all sides by hills of considerable elevation. Through a long succession of by-gone centuries these streams had annually washed down a portion of soil from the uplands, until at length a meadow of a few acres had been formed at their confluence; which space, having been cleared of its timber by some adventurous American backwoodsman, (who afterwards sold it to the brother of Dennis,) formed the site of the humble log-building now occupied by Dennis and his family.

What actually took place respecting the fire-flies, I will relate, as nearly as I am able, in the precise words of Dennis's eldest daughter, who during several years was a servant in my family; but I will not attempt to give it in the pure Irish phraseology in which she used to relate it.

"The first night we came to uncle Thomas's farm, when it grew dark we all huddled round the fire of logs in the chimney-corner: not that we were cold, for the weather was warm and sultry, but because we were strange and lonesome, and did not like the thoughts of uncle Thomas's grave being so near the house; for it was not over a stone-throw from the little back window. Father, however, got up, and opened the door to look out, just when mother was lighting the holy candle (for we had brought two of them all the way from Baltimore); but father quickly shut the door again, and whispered to us that he had seen the *fairies*. Some time afterwards he and I ventured to look from the little back-window in the chamber, when such a sight as we beheld I am sure was never seen in old Ireland! at least, so we then thought; for all around the house, and up the whole length of the meadow, we saw what we then believed to be, scores upon scores of fairies. Mother, and my younger brothers and sisters, could not be prevailed upon to look out at all; so we all agreed to lie

down together upon the little chamber-floor, and we left the holy candle burning in the outer room, for the fairies to dance round, until daylight returned, when we knew they would all disappear.

The whole of next day, father and mother were both very down-hearted, and said, had they but known as much as they *then* knew, they never would have left dear old Ireland; and we were all ready to die with fright, as night drew near, at the thoughts of the fairies. Towards evening, however, Mike Riley, who lives in the upper part of the valley, whom we had seen on our way to our new place, called in on his way home from the grist-mill, and enquired kindly how we all did, and how we were pleased with our new place. Father was not long in telling him all about our having seen the fairies, and enquired of Mike if he had ever seen them since he came to live in that part of the country? Mike Riley answered, that he believed there might be a few fairies about in the woods, but from the description my father had given of the sights we had seen, he said they must have been what the Americans call lightning-bugs, some sort of glow-worms with wings on. This, however, we none of us would believe; so Mike, seeing that we were mightily bothered about these same fairies, consented to remain with us until after dark, and so go home when the moon rose. Sure enough, in less than an hour after the sun went down, many of the lights we had taken for fairies began to show themselves down by the creek by the side of the wood, and shortly after they were visible all over the meadow, but the thickest we thought around uncle Thomas's grave. We all got very much frightened, save Mike Riley, who laughed heartily, and said, if we would go out with him, he would catch some of the lightning-bugs, and convince us that they were not *real* fairies. But we all said we had rather not; so Mike went out into the meadow alone, and presently returned with three or four of the little things in his hand, which he had caught as they settled on the long reeds by the side of the creek. He brought them into the chamber where there was no light; and, sure enough, when they lifted their under-pair of little wings, their backs were as bright as sparks of fire. 'Now,' said Mike Riley, 'are you all satisfied that what you saw last night were not *real* fairies?' We all said we were, because Mike had a long way to go to his home, and we did not wish to detain him any longer; but it was many a long day after we came to live on the Choconut before we were quite entirely satisfied in our minds that the fire-flies were not *real* fairies."

Though Dennis's family ere this may have ceased from feeling alarm at the appearance of a few little innocent fire-flies, yet I much doubt if any of them will outlive the superstitions they carried with them from their dear "county Clare;" since several years subsequent to their taking possession of "uncle Thomas's farm," they continued to burn their "holy candles," on particular occasions, and to practise sundry other superstitious rites, in order to guard themselves against the machinations of "the fairies;" and yet, in spite of all this, when any little mischance occurred in their household concerns, you invariably heard them blaming "the fairies" for it.

J. B. B.

PAUSANIAS, a few days after the victory of Platæa, prepared two repasts, one costly and luxurious like the table of Mardonius (the Persian General), the other plain and frugal, after the Spartan mode—then comparing, he exclaimed to his officers—"What a madness was it in Mardonius who was used to such a luxurious diet, to come and attack a people like us who know how to live without dainties and superfluities, and want nothing of that kind.

## THE MECHANICAL POWERS.

## I.

.....Industry approached,  
And roused him from his miserable sloth;  
His faculties unfolded; pointed out  
Where lavish Nature the directing hand  
Of Art demanded; showed him how to raise  
His feeble force by the mechanic powers;  
To dig the mineral from the vaulted earth,  
On what to turn the piercing rage of fire,  
On what the torrent, and the gathered blast;  
Gave the tall ancient forest to his axe;  
Taught him to chip the wood and hew the stone,  
Till by degrees the finished fabric rose.—THOMSON.

THE advance of man from barbarism to civilization is marked by those increasing efforts of reason, from which result so many comforts to himself, and an improved appearance in everything around him. He no longer wastes his strength in rude and unassisted attempts to overcome the refractory qualities of matter; but he gradually invents machines and acquires the art of directing them, so as to ensure the most advantageous expenditure of his powers. These simple machines, most of which were probably the offspring of unrecorded ages, we are about to describe in their more improved form and more efficient mode of application. These are called "the mechanic powers," and they enter into the construction of machines generally; and regulated as they are by certain simple natural laws, they may be said to form the foundation on which the noble superstructure of mechanical philosophy has been erected.

By a mechanical power we mean some contrivance whereby the natural power of a man or animal may be directed or varied. Thus, a man cannot by his unassisted force, cleave a large block of stone asunder, but by using a mechanical power he can not only effect this, but many other apparently difficult operations. But in truth, the power of a man or animal cannot be augmented by any artificial means; it is only applied in a different manner, so as to produce effects in a larger or more easy manner than those which it ordinarily produces. The general effect of force applied to any body is to produce a motion in that body: now if the body to be moved remain the same, but the force applied to it be increased, the effect will be an increased quantity of motion, that is, a greater velocity. The greater the force the greater is the velocity, provided the weight to be moved remain the same; but the same power which produces only a small degree of velocity, in a body of great weight, and consequently difficult to move, will produce a much greater velocity in a body of much smaller weight, and which will therefore be more easily moved. With the same absolute power, therefore, the smaller the load or weight to be moved the greater is the velocity, and *vice versa*. On the same principle, the force possessed by a moving body is proportional both to its weight and to its velocity. The force of a small body moving very rapidly, may be equal to that of a large body moving slowly. Hence arises the great superiority of cannon-balls projected with immense velocity by the force of gunpowder, over the immense battering rams used in ancient times, which were only moved by men, with a comparatively small velocity. The absolute effect of a missile is found by multiplying the weight and velocity together. For instance, if the weight of a battering ram be five thousand pounds, and it be moved along by the soldiers with a velocity of twenty feet in a second, which is probably a greater velocity than could possibly be produced in practice, the *momentum*, or moving impulse of such a mass, or its tendency to push down the wall against which it is moved, would be expressed by  $5000 \times 20$ , that is,

100,000 lbs. Now, if the average rapidity of a cannon-shot be taken at two thousand feet in a second, a fifty-pound shot will be equal in effect to this great battering ram; for  $50 \times 2000$  gives 100,000 lbs., the same force as that produced by the battering ram. This explains why fortifications must be now made much stronger, and in a different manner to what they were before the invention of gunpowder.

Now to apply this principle to any mechanical power. If it be required to make a small moving power move a great weight, we must diminish the velocity of the latter, and increase that of the former, in order that its momentum may be equal to that of the heavier but slower body: this may be effected in a great many different ways. It is customary to reckon *six* mechanical powers for effecting this, viz., the lever, the wheel, the pulley, the inclined plane, the wedge, and the screw. But the first two of these certainly act on the same principle, and are only different modifications of the same instrument; and the last three are also only different forms of the inclined plane, so that the whole may be resolved into three principles, or laws.

Of these laws, the first, which relates to the lever and the wheel, is that, if any body or system of bodies revolves on a certain fixed point, called its *centre of motion*, or on a certain fixed line called its *axis*, those bodies or parts of the body which are furthest from that axis or centre, move more rapidly than those which are nearer to the axis or centre. The velocity with which any part of a revolving body moves, is exactly proportional to its distance from the centre or axis; so that if two bodies revolve round the same centre, and are connected by an inflexible bar, and if one of them be at the distance of four feet from the centre, while the other is at the distance of only two feet, the former will move with twice the velocity of the latter.

The reason of this will be evident by considering that the circumferences of two circles bear the same ratio to each other as their radii. The circumference of every circle is about equal to six times the radius; therefore the body which is fixed at four feet from its centre or axis of motion, describes a circle whose radius is four feet, or circumference six times four, or twenty-four feet. But the body placed at a distance of two feet from the centre, only moves round a circle whose radius is two feet, or whose circumference is twelve feet. Thus the former body moves through a space of twenty-four feet, in exactly the same time that the latter moves through a space of only twelve feet, and it must therefore possess twice the velocity of the nearer body, so that if the weights be equal it will possess twice the momentum.

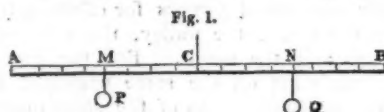
It is on this principle that the action of the two most extensively used mechanical powers depends, namely, the lever, and the wheel and axle.

## 1. THE LEVER.

THIS mechanical power is so simple, that its principles seem naturally implanted in the mind of man. When we wish to move or lift a weight that would otherwise be too heavy for us, or to overcome a strong resistance, we naturally make use of the first article that comes in our way, as a *lever*, or *lifting* power, as the word implies, being derived from the Latin through the French, from a word which signifies *to raise easily*. This is an operation rather of instinct than of reason; there seems to be no reflection used, and the rudest savage would not apply the lever in the wrong manner, so as not to use his strength to the best advantage.

The lever, which is said to have been invented by

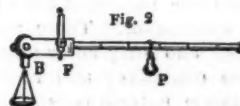
Archimedes about 220 years B.C., is nothing more than an inflexible bar of some substance, resting on one fixed point called the *fulcrum*, or prop, which serves as its centre of motion. It matters not what may be its shape; but, in order to perform experiments conveniently with it, let the reader provide himself with a straight stick or bar, sufficiently strong and stiff to sustain a considerable weight without breaking or bending. Let a notch be cut exactly in the middle of its length, so that if suspended by a string tied round this notch, the stick may balance itself and remain quite horizontal. Divide the bar into a number of equal parts, say inches, beginning at the middle point, and setting them off each way to the two ends of the bar, as in the following figure.



Now, every one knows that if two equal weights be hung on this lever, one at each end, the bar will not move, but remain balanced; but, if they be unequal, that which is heavier will preponderate and sink, and the lighter end will rise. But this only holds good as long as the two weights are equally distant from the fulcrum, or point of suspension c. If the two weights be not at the same distance from the fulcrum, that which is furthest from it will appear to weigh heavier than the other, although, in reality, the weights are equal. Thus, if you move the weight p to the end a, it will overbalance the other weight q, although its weight is still the same; and you will find that it will require the weight q to be made twice as heavy, before it can balance the weight p. Thus you can make a weight of one pound at a balance two pounds at q; because the distance c a is twice as great as the distance c q; and of course, whatever weight you hang at a, it will require twice that weight to be hung at q, to balance it. If the distance c a were five times as great as c q, then the weight q must be five times as heavy, as the weight at a; and the same with any other number. If you hang a weight of ten pounds on one arm of the lever, at the distance of two inches from the fulcrum, and then hang a weight of two pounds on the other arm, sliding it backwards or forwards till it balances the ten pounds, you will find that it will do so only at the distance of ten inches. In the same way you may make any number of similar experiments, and you will always find that if each weight be multiplied by its distance from the centre, the products of the two weights will be equal. For instance, in the last mentioned example, the ten pounds multiplied by its distance, two inches, produces twenty; and the other weight, two pounds, multiplied by its distance, ten inches, also produces twenty. In this manner, if you have the distance of one weight given, you may always find the distance of the other. Suppose a weight of three pounds be hung on one arm, at the distance of four inches from the centre, and it is required to find at what distance a weight of two pounds must be hung on the other arm so as to balance it. Here the weight, three pounds, multiplied by its distance from the fulcrum, four inches, produces twelve; and in order that two pounds may produce twelve, it must be multiplied by six; so that the distance of the two pound weight must be six inches; and, accordingly, you will find upon trial, that three pounds at four inches, will balance two pounds at six inches.

A common pair of scales is a lever of this kind, but the distances of the weights (in a true pair of scales),

are always equal; and, therefore, in order to produce equilibrium, the weights must be equal also. But, if the beam of a pair of scales had one arm longer than the other, the articles placed in the scale hanging from the longer arm, will seem heavier than they really are; and thus badly disposed persons, using such articles, might cheat those whom they deal with. Sometimes, however, it is found convenient to use a balance, having one arm a great deal longer than the other, as in the case of the weighing-machines, used at turnpike-gates, to weight loaded carts and wagons. Here it would be very inconvenient to use weights of some tons, which must be done, if a common balance were used. The arm, therefore, which bears the platform on which the vehicle rests, is much shorter than the other, which only bears a small scale. A pound therefore, placed in this scale, might be made to balance a ton on the platform, and the other weights in proportion; so that a large loaded wagon can be weighed with as much ease as a small article only weighing a few pounds. The principles of the lever are also taken advantage of in the steel-yard used by butchers and others, which is represented in this figure.



Here the fulcrum is at f, and the articles to be weighed are placed in the scale or suspended from a hook, at b. Only one weight p is used, and this is slid backwards and forwards on the longer arm. Suppose this weight weighs a pound, and that each of the divisions on the longer arm is equal to the whole of the shorter arm b f. Then, if the weight be placed at the first division from f, it will be at the same distance from f as b is; therefore, the article suspended at b, must weigh one pound. But if the weight p, be moved to the third division, its distance from the fulcrum will be three times that of b; therefore, the weight at a must be three times that at p, or three pounds. In fact, the number of divisions between f and p, always indicate the weight of the article in the scale b, in pounds; and for fractions of a pound, the divisions are subdivided into halves, quarters, &c.

When two men at the distance, say of nine feet from each other, carry a tub, weighing, say 180 pounds, upon a pole; if the point at which the cask is hung, be three feet from the shoulder of the first, and six feet from the shoulder of the second, then, on the principle already laid down and illustrated, the first man sustains a pressure twice as great as the second man. The first bears a weight of 120 lbs., and the second a weight of only 60; the proof of which is that  $120 \text{ lbs.} \times 3 \text{ ft.} = 60 \text{ lbs.} \times 6 \text{ ft.}$



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